SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR

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QUESTION BANK (DESCRIPTIVE)

Subject : TRACTOR SYSTEMS &CONTROL Course(18AG0725)	**Branch :** B.Tech – AGE
Year & Sem : IV – B.Tech & I –Sem	**Regulation :** R18

UNIT – I

PART-A			
1	a) What is clutch?	[L1][CO1]	[2M]
	b) Explain Principle of Gearing	[L1][CO1]	[2M]
	c) Why gear box is needed in tractors?	[L1][CO1]	[2M]
	d) What are the different types of clutch.?	[L1][CO1]	[2M]
	e) What is final drive?	[L1][CO1]	[2M]
PART-B			
2.	Explain the components and function of a drive train with neat sketch.	[L1][CO1]	[10M]
3.	a)Write a note on differential lock	[L1][CO1]	[5M]
	b) What is final drive? Explain in short	[L1][CO1]	[5M]
4.	Discuss about differential unit with neat diagram	[L6][CO1]	[10M]
5.	Explain the principle of operation of differential unit with neat diagram	[L1][CO1]	[10M]
6.	a) Explain Constant Mesh Gear Box.	[L1][CO1]	[5M]
	b) Explain synchromesh gear box.	[L1][CO1]	[5M]
7.	a) What are the essential features of clutch?	[L1][CO1]	[5M]
	b) Explain sliding mesh gear box	[L1][CO1]	[5M]
8.	Illustrate about of dual plate clutch system.	[L2][CO1]	[10M]
9.	Explain working of single plate clutch system with neat diagram	[L1][CO1]	[10M]
10.	A single plate clutch with both sides effective has an outer diameter of 30 cm and inner diameter of 20 cm. The maximum intensity of pressure at any point in the contact surfaces does not exceed 1 Kg/cm^2. If the coefficient of friction is 0.3, determine the power transmitted by clutch operating at 2000 rpm speed.	[L6][CO1]	[10M]

UNIT – II

PART-A			
1	a) What is brake pedal free play	[L1][CO2]	[2M]
	b) What is brake? How brakes are classified?	[L1][CO2]	[2M]
	c) State the function of Steering arm and Tie rod	[L1][CO2]	[2M]
	d) State the function of Brake and clutch	[L1][CO2]	[2M]
	e) What is Ackerman steering?	[L1][CO2]	[2M]
PART-B			
2.	Explain internal expanding shoe brakes with neat diagram	[L1][CO2]	[10M]
3.	Discuss about external contracting shoe brakes with neat diagram	[L6][CO2]	[10M]
4.	Explain disc brake with neat sketch.	[L1][CO2]	[10M]
5.	Explain principle of operation and working of hydraulic brake with neat diagram	[L1][CO2]	[10M]
6.	Distinguish between clutch and brake	[L4][CO2]	[10M]
7.	Explain working of mechanical steering system with neat diagram.	[L1][CO2]	[10M]
8.	Explain about camber angle, caster angle and toe in	[L1][CO2]	[10M]
9.	Explain Toe-in, Toe out, camber angle, caster angle and wheel base with neat diagrams.	[L1][CO2]	[10M]
10.	Explain advantages and working of power steering system with neat diagram	[L5][CO2]	[10M]

UNIT – III

PART-A			
1	a) What is work of relief valve?	[L1][CO3]	[2M]
	b) What is mixed control system?	[L1][CO3]	[2M]
	c) What is the function direction control valve?	[L1][CO3]	[2M]
	d) What is hydraulic system?	[L1][CO3]	[2M]
	e) What is hitching in tractor?	[L1][CO3]	[2M]
PART-B			
2.	Explain merits of hydraulic system over mechanical system.	[L1][CO3]	[10M]
3.	Discuss about hydraulic system with neat diagram	[L6][CO3]	[10M]
4.	Explain different types of hydraulic valves.	[L1][CO3]	[10M]
5.	Explain different types of hydraulic system	[L1][CO3]	[10M]
6.	Distinguish between position control and draft control system.	[L4][CO3]	[10M]
7.	Explain draft control system with neat sketch	[L1][CO3]	[10M]
8.	Explain the construction and working of three point linkage mechanism.	[L2][CO3]	[10M]
9.	Explain the hitching implements of tractor.	[L1][CO3]	[10M]
10.	Explain ADDC in detail.	[L5][CO3]	[10M]

UNIT – IV

PART-A			
1	a) Define gross tractive resistance (μg)	[L1][CO4]	[2M]
	b) List the traction aids	[L1][CO4]	[2M]
	c) What is net traction coefficient (μ)	[L1][CO4]	[2M]
	d) Define coefficient of rolling resistance (ρ)	[L1][CO4]	[2M]
	e) What is tractive efficiency(T.E.)	[L1][CO4]	[2M]
PART-B			
2.	What are the different types of PTO? Explain in detail.	[L1][CO4]	[10M]
3.	Explain in detail the hitching implements of tractor	[L1][CO4]	[10M]
4.	Distinguish between belt pulley and PTO	[L4][CO4]	[10M]
5.	What are the advantages of three point linkage hitch in a tractor?	[L1][CO4]	[10M]
6.	What are the factors affecting traction? Explain any two factors affecting traction in detail.	[L4][CO4]	[10M]
7.	Discuss about longitudinal stability of tractor at load.	[L6][CO4]	[10M]
8.	What is ply rating? Explain lateral stability of tractor	[L2][CO4]	[10M]
9.	In detail explain the methods of determining the C.G measurement of tractor.	[L1][CO4]	[10M]
10.	Determine drawbar pull of a track type tractor with 35 cm wide and 160 cm long track. The weight of tractor is 3500 kg. The lugs on the wheel are such that the soil is sheared off in a plane area at the ends of lugs and the soil parameters are: C = 14 KPa, $\emptyset = 30^0$, $K_c = 3$, $K\emptyset = 0.5$ and n =0.2	[L6][CO4]	[10M]

UNIT – V

PART-A		
1 a) Define weight transfer?	[L1][CO5]	[2M]
b) What is the need for tractor testing?	[L1][CO5]	[2M]
c) Define test code?	[L1][CO5]	[2M]
d) What is function of tractor chassis?	[L1][CO5]	[2M]
e) What are the types of chassis?	[L1][CO5]	[2M]
PART-B		
2. Discuss the preparation of test in testing tractor performance.	[L6][CO5]	[10M]
3. Explain the different types of tractor test in detail	[L1][CO5]	[10M]
4. What is tractor chassis? Explain in detail its function and types.	[L1][CO5]	[10M]
5. Discuss about traction theory	[L6][CO5]	[10M]
6. Illustrate in detail the tractor operation safety precautions	[L2][CO5]	[10M]
7. Distinguish between chassis less tractor and tractor with chassis	[L4][CO5]	[10M]
8. Briefly describe the maintenance of tractor chassis	[L2][CO5]	[10M]
9. What are the different types of tyre? Explain them.	[L1][CO5]	[10M]
10. Explain control board or dash board of a tractor in detail.	[L5][CO5]	[10M]

Prepared by: Dr. Shashikumar